MCQs

1. **Glucocorticoids are hormonal steroids:**
   A. Having an important effect on immune function
   B. Having principally salt-retaining activity
   C. Having androgenic or estrogenic activity
   D. Having hypercalcemic activity
   E. Having hyperkalemic activity

2. **Correct statements about cortisol (hydrocortisone) include all of the following, EXCEPT:**
   A. Cortisol is synthesized from cholesterol
   B. ACTH governs cortisol secretion
   C. Most cortisol is inactivated in the liver
   D. Cortisol has equal anti-inflammatory and salt-retaining activity
   E. The half-life of cortisol in the circulations is normally about 60 hours.

3. **Correct statements about glucocorticoids include all of the following, EXCEPT:**
   A. Effects of glucocorticoids are mediated by widely distributed glucocorticoid receptors that are members of the superfamily of nuclear receptors.
   B. Glucocorticoids have high plasma protein binding
   C. Glucocorticoids have dose-related metabolic effects on carbohydrate, protein, and fat metabolism.
   D. Glucocorticoids have pro-inflammatory effects.
   E. Glucocorticoids have catabolic effects in lymphoid and connective tissue, muscle, fat, and skin.

4. **Which of the following glucocorticoids is relatively a short-acting drug?**
   A. Prednisolone
   B. Dexamethasone
   C. Triamcinolone
   D. Paramethasone
   E. Betamethasone

5. **Which of the following glucocorticoids is an intermediate-acting drug?**
   A. Cortisone
   B. Triamcinolone
   C. Butamethasone
   D. Prednisolone
   E. Dexamethasone

6. **Immunosupressive effect of glucocorticoids is caused by:**
   A. Reducing concentration of lymphocytes and inhibiting function of tissue macrophages and other antigen-presenting cells
   B. Suppression of cyclooxygenase II expression which results in reducing amount of an enzyme available to produce prostoglandins
   C. Activation of phospholipase A2 and reducing prostaglandin and leukotriene synthesis.
   D. Activation of angiotensin-converting enzyme
   E. Suppression of histamine release

7. **Indication of glucocorticoids include of the following EXCEPT:**
   A. Chronic (Addison's disease) and acute adrenocortical insufficiency
   B. Organ transplants (prevention and treatment of rejection – immunosuppression(
   C. Inflammatory conditions of bones and joints (arthritis, bursitis, tenosynovitis.(
   D. Hypocalcemia

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E. Gastrointestinal diseases (inflammatory bowel disease)

8. Which of the following is an important effect of insulin?

A. Increased conversion of amino acids into glucose
B. Increased gluconeogenesis
C. Increased glucose transport into cells
D. Inhibition of lipoprotein lipase
E. Stimulation of glycogenolysis

9. Which of the following agents should be administered to achieve rapid control of the severe ketoacidosis in a diabetic boy?

A. Regular insulin
B. Glyburide
C. Insulin glargine
D. NPH insulin
E. Tolbutamide

10. Which of the following is the most likely complication of insulin therapy?

A. Dilutional hyponatremia
B. Hypoglycemia
C. Increased bleeding tendency
D. Pancreatitis
E. Severe hypertension

11. A 24-year-old woman with type 1 diabetes wishes to try tight control of her diabetes to improve her long-term prognosis. Which of the following regimens is most appropriate?

A. Morning injections of mixed insulin lispro and insulin aspart
B. Evening injections of mixed regular insulin and insulin glargine
C. Morning and evening injections of regular insulin, supplemented by small amounts of NPH insulin at mealtimes
D. Morning injections of insulin glargine, supplemented by small amounts of insulin lispro at mealtimes
E. Morning injection of NPH insulin and evening injection of regular insulin

12. Which one of the following drugs promotes the release of endogenous insulin?

A. Acarbose
B. Pioglitazone
C. Glipizide
D. Metformin
E. Miglitol

13. The combination of metformin and ethanol increases the risk of which of the following?

A. A disulfiram-like reaction
B. Excessive weight gain
C. Hypoglycemia
D. Lactic acidosis
E. Serious hepatotoxicity

14. Which of the following drugs is most likely to cause hypoglycemia when used as monotherapy in the treatment of type 2 diabetes?

A. Acarbose
B. Rosiglitazone
C. Glyclazide
D. Metformin
E. Miglitol

15. Which of the following drugs is taken during the first part of a meal for the purpose of delaying the absorption of dietary carbohydrates?

A. Acarbose
B. Exenatide
C. Glipizide
D. Pioglitazone
E. Repaglinide

16. The PPAR-γ receptor that is activated by thiazolidinediones increases tissue

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sensitivity to insulin by which of the following mechanisms?

A. Activating adenylyl cyclase and increasing the intracellular concentration of cAMP
B. Inactivating a cellular inhibitor of the GLUT2 glucose transporter
C. Inhibiting acid glucosidase, a key enzyme in glycogen breakdown pathways
D. Regulating transcription of genes involved in glucose utilization
E. Stimulating the activity of a tyrosine kinase that phosphorylates the insulin receptor

17. Which of the following patients is most likely to be treated with intravenous glucagon?

A. An 18-year-old woman who took an overdose of cocaine and now has a blood pressure of 190/110 mm Hg
B. A 27-year-old woman with severe diarrhea caused by a flare in her inflammatory bowel disease
C. A 57-year-old woman with type 2 diabetes who has not taken her glyburide for the last 3 d
D. A 62-year-old man with severe bradycardia and hypotension resulting from ingestion of an overdose of atenolol
E. A 74-year-old man with lactic acidosis as a complication of severe infection and shock

18. In Graves' disease, the cause of the hyperthyroidism is the production of an antibody that does which of the following?

A. Activates the pituitary thyrotropin-releasing hormone (TRH) receptor and stimulates TSH release
B. Activates the thyroid gland TSH receptor and stimulates thyroid hormone synthesis and release
C. Activates thyroid hormone receptors in peripheral tissues
D. Binds to thyroid gland thyroglobulin and accelerates its proteolysis and the release of its supply of T4 and T3
E. Binds to thyroid-binding globulin (TBG) and displaces bound T4 and T3

19. Methimazole reduces serum concentration of T3 primarily by which of the following mechanisms?

A. Accelerating the peripheral metabolism of T3
B. Inhibiting the proteolysis of thyroid-binding globulin
C. Inhibiting the secretion of TSH
D. Inhibiting the uptake of iodide by cells in the thyroid
E. Preventing the addition of iodine to tyrosine residues on Thyroglobulin

20. Though rare, a serious toxicity associated with the thioamides is which of the following?

A. Agranulocytosis
B. Lupus erythematosus-like syndrome
C. Myopathy
D. Torsade de pointes arrhythmia
E. Thrombotic thrombocytic purpura (TTP)

21. A 65-year-old man with multinodular goiter is scheduled for a near-total thyroidectomy. Which of the following drugs will be administered for 10–14 d before surgery to reduce the vascularity of his thyroid gland?

A. Levothyroxine
B. Liothyronine
C. Lugol's solution
D. Prednisone
E. Radioactive iodine

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22. **Which of the following is a sign or symptom that would be expected to occur in the event of chronic overdose with exogenous T_4?**
A. Bradycardia
B. Dry, puffy skin
C. Large tongue and drooping of the eyelids
D. Lethargy, sleepiness
E. Weight loss

23. **When initiating T4 therapy for an elderly patient with longstanding hypothyroidism, it is important to begin with small doses to avoid which of the following?**
A. A flare-up of exophthalmos
B. Acute renal failure
C. Hemolysis
D. Overstimulation of the heart
E. Seizures

24. **A 27-year-old woman underwent near total thyroidectomy. She was started on levothyroxine. What hormone is produced in the peripheral tissues when levothyroxine is administered?**
A. Methimazole
B. T3
C. T4
D. TSH
E. FSH

25. **A 62-year-old woman presents with complaints of fatigue, sluggishness, and weight gain. She needs to sleep several times a day, which is unusual for her. She has been taking T4 for the past 15 yr without significant problems regarding her energy level. Her recent history is significant for diagnosis of arrhythmia, and she is currently taking an antiarrhythmic drug. What is the most likely cause of her current condition?**
A. Amiodarone
B. Lidocaine
C. Procainamide
D. Sotalol
E. Verapamil

26. **A 25-year-old woman presents with insomnia and fears she may have "something wrong with her heart." Lab tests confirm hyperthyroidism. Which of the following is a drug that produces a permanent reduction in thyroid activity?**
A. I^{131}
B. Methimazole
C. Propylthiouracil
D. Thiocyanate
E. Thyroglobulin

27. **Glucocorticoids have proved useful in the treatment of which of the following medical conditions?**
A. Chemotherapy-induced vomiting
B. Essential hypertension
C. Hyperprolactinemia
D. Parkinson's disease
E. Type II diabetes

28. **A patient presents with pain and stiffness in his wrists and knees. The stiffness is worse first thing in the morning. A blood test confirms rheumatoid arthritis. You advise a short course of steroids. Which one of the following is the most potent anti-inflammatory steroid?**
A. Cortisol
B. Dexamethasone
C. Fludrocortisone
D. Prednisone
E. Triamcinolone

29. **A 34-year-old woman with ulcerative colitis has required long-term treatment with pharmacologic doses of a glucocorticoid agonist. Which of the**

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following is a toxic effect associated with long-term glucocorticoid treatment?

A. A lupus-like syndrome
B. Adrenal gland neoplasm
C. Hepatotoxicity
D. Osteoporosis
E. Precocious puberty in children

30. All of the following drugs may be beneficial in the treatment of patients with acromegaly except:

A. Lanreotide.
B. Octreotide.
C. Pegvisomant.
D. Somatropin

31. A 40-year-old female is undergoing infertility treatments. Which of the following drugs might be included in her treatment regimen?

A. Cabergoline.
B. Follitropin.
C. Methimazole.
D. Vasopressin

32. Which of the following is the treatment of choice for hypothyroidism?

A. Iodide.
B. Levothyroxine.
C. Liothyronine.
D. Liotrix.
E. Propylthiouracil

33. All of the following agents are correctly paired with an appropriate clinical use of the drug except:

A. Desmopressin—treatment of diabetes insipidus.
B. hCG—treatment of infertility.
C. Octreotide—treatment of bleeding esophageal varices.
D. Oxytocin—induction of labor.
E. Goserelin—growth hormone deficiency

N.B → Goserelin is a GnRH analog that may be used for the treatment of prostate cancer or endometriosis. The other choices are paired correctly with their respective clinical uses.

34. Which of the following statements is correct regarding insulin glargine?

A. It is primarily used to control postprandial hyperglycemia.
B. It is a "peakless" insulin.
C. The prolonged duration of activity is due to slow dissociation from albumin.
D. It should not be used in a regimen with insulin lispro or glulisine.
E. It may be administered intravenously in emergency cases.

35. 35.DW is a patient with type 2 diabetes who has a blood glucose of 400 mg/dL today at his office visit. The physician would like to give some insulin to bring the glucose down before he leaves the office. Which of the following would lower the glucose in the quickest manner in DW?

A. Insulin aspart.
B. Insulin glargine.
C. NPH insulin.
D. Regular insulin.

36. Which of the following classes of oral diabetes drugs is paired most appropriately with its primary mechanism of action?

A. DPP-4 inhibitor—inhibits breakdown of complex carbohydrates.
B. Glinide—increases insulin sensitivity.
C. Sulfonylurea—increases insulin secretion.
D. Thiazolidinedione—decreases hepatic gluconeogenesis.

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40.

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37. **Which of the following statements is characteristic of metformin?**
   A. Metformin is inappropriate for initial management of type 2 diabetes.
   B. Metformin decreases hepatic glucose production.
   C. Metformin undergoes significant metabolism via the cytochrome P450 system.
   D. Metformin should not be combined with sulfonylureas or insulin.
   E. Weight gain is a common adverse effect.

38. **Which of the following is the most appropriate initial oral agent for management of type 2 diabetes in patients with no other comorbid conditions?**
   A. Glipizide.
   B. Insulin.
   C. Metformin.
   D. Pioglitazone.

39. **A 64-year-old woman with a history of type 2 diabetes is diagnosed with heart failure. Which of the following medications would be a poor choice for controlling her diabetes?**
   A. Exenatide.
   B. Glyburide.
   C. Nateglinide.
   D. Pioglitazone.
   E. Sitagliptin.

40. **KD is a 69-year-old male with type 2 diabetes and advanced chronic kidney disease. Which of the following diabetes medications is contraindicated in this patient?**
   A. Glipizide.
   B. Insulin lispro.
   C. Metformin.
   D. Saxagliptin.

41. **Which of the following drugs for diabetes would be LEAST likely to cause weight gain?**
   A. Glimepiride.
   B. Liraglutide.
   C. Pioglitazone.
   D. Repaglinide.
   E. Insulin glulisine.

42. **A patient with type 2 diabetes is taking metformin. The fasting glucose levels are in range, but the postprandial glucose is uncontrolled. All of the following drugs would be appropriate to add to metformin to target postprandial glucose except:**
   A. Acarbose.
   B. Exenatide.
   C. Insulin aspart.
   D. Pramlintide.

43. **Which of the following diabetes medications is most appropriately paired with an adverse effect associated with its use?**
   A. Canagliflozin—lactic acidosis.
   B. Metformin—urinary tract infections.
   C. Nateglinide—heart failure.
   D. Liraglutide—pancreatitis

44. **Which of the following zones of the adrenal gland is correctly paired with the type of substance it secretes?**
   A. Adrenal medulla—corticotropin.
   B. Zona fasciculata—cortisol.
   C. Zona glomerulosa—androgens.
   D. Zona reticularis—catecholamines.

45. **Corticosteroids are useful in the treatment of all of the following disorders except:**
   A. Addison disease.

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B. Allergic rhinitis.
C. Cushing syndrome.
D. Inflammatory bowel disease.
E. Rheumatoid arthritis.

46. All of the following adverse effects commonly occur with glucocorticoid therapy except:
A. Glaucoma.
B. Increased risk of infection.
C. Hypotension.
D. Emotional disturbances.
E. Peripheral edema.

47. Osteoporosis is a major adverse effect caused by the glucocorticoids. It is due to their ability to:
A. Increase the excretion of calcium.
B. **Inhibit absorption of calcium.**
C. Stimulate the hypothalamic–pituitary–adrenal axis.
D. Decrease production of prostaglandins.
E. Decrease collagen synthesis.

48. A child with severe asthma is being treated with high doses of inhaled corticosteroids. Which of the following adverse effects is of particular concern?
A. Hypoglycemia.
B. Hirsutism.
C. Growth suppression.
D. Cushing syndrome.
E. Cataract formation.

49. The diagnosis of congenital adrenal hyperplasia (CAH) is confirmed in a child. This condition can be effectively treated by:
A. Administering a glucocorticoid.
B. Administering an androgen antagonist.
C. Administering ketoconazole to decrease cortisol synthesis.
D. Removing the adrenal gland surgically.
E. Administering adrenocorticotropic hormone.

50. A patient with Addison disease is being treated with hydrocortisone but is still having problems with dehydration and hyponatremia. Which of the following drugs would be best to add to the patient's therapy?
A. Dexamethasone.
B. Fludrocortisone.
C. Prednisone.
D. Triamcinolone.

51. All of the following are strategies to minimize the development of HPA axis suppression with corticosteroid therapy except:
A. Alternate-day administration of therapy.
B. Administration via topical or inhalation routes when possible.
C. Using the lowest dose of corticosteroid that adequately controls symptoms.
D. Administration of two-thirds of the daily dose in the morning and one-third in the afternoon.

52. Which of the following patients would most likely have suppression of the HPA axis and require a slow taper of corticosteroid therapy?
A. A patient taking 40 mg of prednisone daily for 7 days to treat an asthma exacerbation.
B. A patient taking 10 mg of prednisone daily for 3 months for rheumatoid arthritis.
C. A patient using mometasone nasal spray daily for 6 months for allergic rhinitis.
D. A patient receiving an intra-articular injection of methylprednisolone for osteoarthritis.

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53. Which of the following corticosteroids is most appropriate to administer to a woman in preterm labor to accelerate fetal lung maturation?
A. Betamethasone.
B. Fludrocortisone.
C. Hydrocortisone.
D. Prednisone.

54. All of the following statements about octreotide are true EXCEPT :
A. It is effective orally
B. It is used for the treatment of acromegaly
C. It can be used for the management of secretory diarrhea
D. It can be used in bleeding esophageal varices

55. Long acting dopamine agonist is:
A. Bromocriptine
B. Lisuride
C. Cabergoline
D. Apomorphine

56. A 65-year-old man with multinodular goiter is scheduled for a near-total thyroidectomy. Which of the following drugs will be administered for 10–14 d before surgery to reduce the vascularity of his thyroid gland?
A. Levothyroxine
B. Liothyronine
C. Lugol's solution
D. Radioactive iodine

57. A 50-year-old woman suffering from hyperthyroidism was admitted to the emergency department with the admitting diagnosis of thyroid storm. Further exams confirmed the diagnosis, and an emergency therapy was started that included propranolol and hydrocortisone. Which of the following pairs of drugs should also be added to the emergency treatment of this patient?
A. Diltiazem and methimazole
B. Aspirin and atenolol
C. Radioactive iodine and dexamethasone
D. Esmolol and verapamil
E. Propylthiouracil and potassium iodide

58. A 7-year-old boy was brought to the emergency department by his parents because of nausea, vomiting, and persistent abdominal pain secondary to the flu medical history of the patient was unremarkable. Pertinent serum values on admission were fasting blood glucose 300 mg/dL (70–110 mg/dL), glycosuria 3+. Which of the following drugs would be appropriate for this patient ?
A. Regular insulin
B. Metformin
C. Pioglitazone
D. Repaglinide
E. Miglitol

59. A 59-year-old man suffering from type 2 diabetes had been receiving an oral antidiabetic therapy that included a drug that closes adenosine triphosphate (ATP)–sensitive K+ channels on pancreatic β-cell membranes. Which of the following drugs most likely uses this mechanism of action?
A. Acarbose
B. Glipizide
C. Metformin
D. Exenatide
E. Pioglitazone

60. A 55 years old obese lady discovered to have random blood glucose 350 mg/dl during screening at 100 million health and HBA1C > 13. She was told that she has type 2 DM. What is the next step?

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A. Just follow up
B. Metformin should be started
C. She can be given a small dose sulphonyl urea
D. give her dual therapy.
E. Give her triple therapy.

1. A	2. E	3. D	4. A	5. B
6. A	7. D	8. C	9. A	10.B
11.D	12.C	13.D	14. C	15.A
16.D	17.D	18.B	19.E	20.A
21.C	22.E	23.D	24.B	25.A
26.A	27.A	28.B	29.D	30.D
31.B	32.B	33.E	34.B	35.A
36.C	37.B	38.C	39.D	40.C
41.B	42.D	43.D	44.B	45.C
46.C	47.B	48.C	49.A	50.B
51.D	52.B	53.A	54.A	55.C
56.C	57.E	58.A	59.B	60.E

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